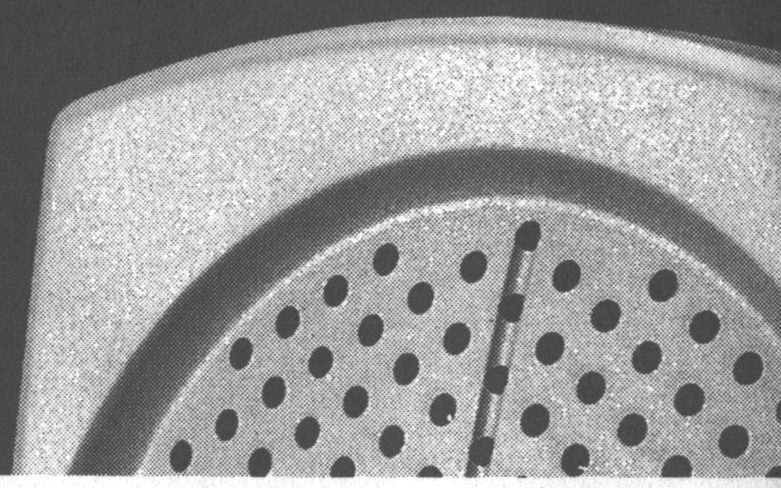
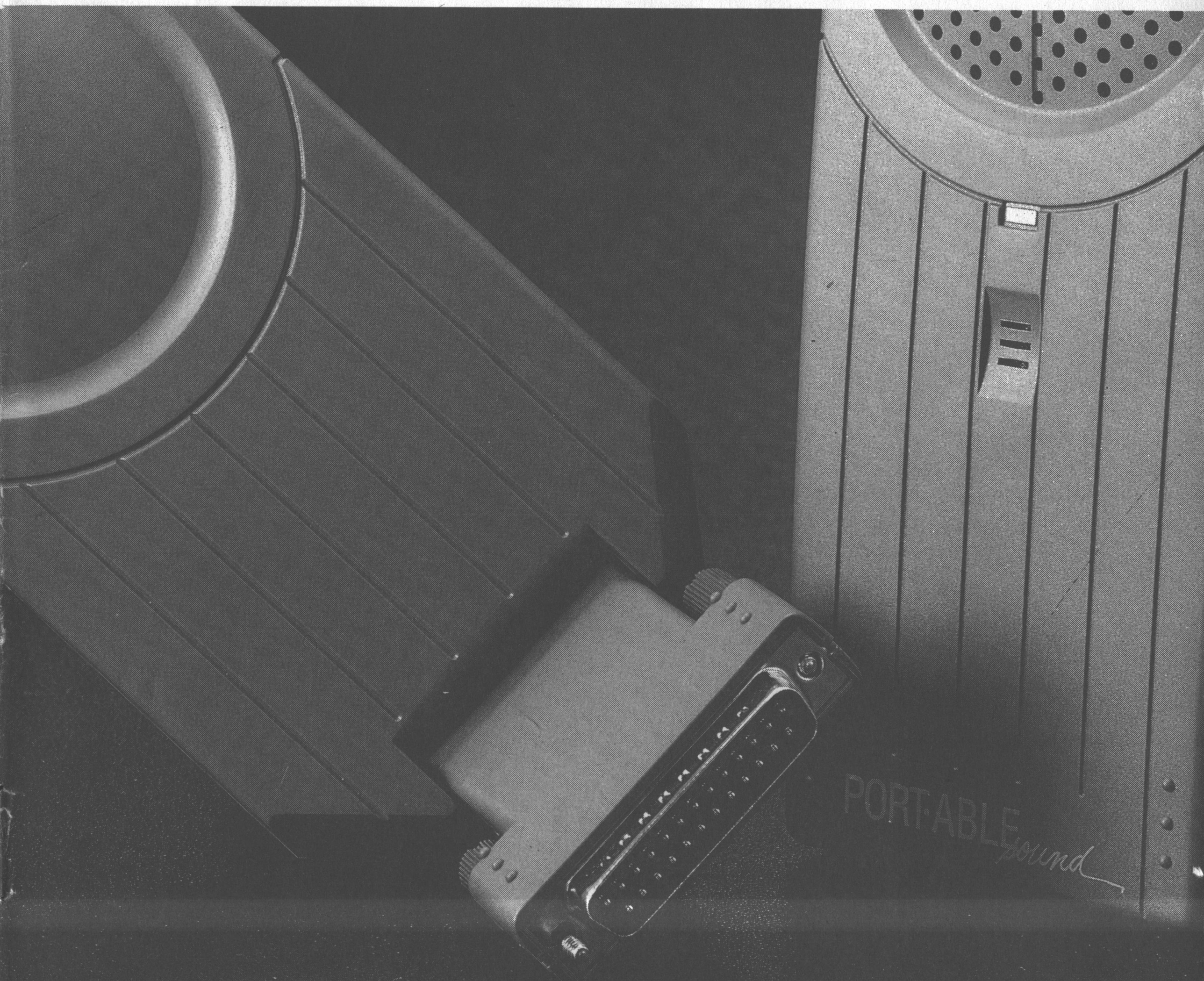
USER GUIDE
VERSION 2.0



PORTABLE *sound* PLUS



IBM Business Partner

DSP inc.™ SOLUTIONS

Contents

Welcome.....1

Product Description 2

PORT•ABLE Sound Plus™, the Hardware 2

What You Need to Use PORT•ABLE Sound Plus™... 3

Compatibility 3

PORT•ABLE Sound Plus™ Package Contents 4

PORT•ABLE Sound Plus™, the Software 4

Drivers..... 4

Windows™ Applications 5

DOS Applications 6

Text-to-Speech Utilities 6

Diagnostics 6

Installation Instructions.....7

Hardware Installation..... 7

Connecting to the Computer..... 7

Connecting the Base and Speaker Units 8

Connecting to Audio Systems 8

Replacing the Batteries..... 9

Software Installation..... 9

DOS Installation Procedure..... 9

DOS Setup Procedure 10

Windows™ Installation Procedure 10

Technical Support..... 11

Operating Instructions.....12

Sound Blaster-Compatible Applications 12

Sound Blaster Emulation from Windows™..... 12

Sound Blaster Emulation from DOS 12

PORT•ABLE Sound Applications..... 13

Loading DOS drivers 14

Unloading DOS drivers..... 14

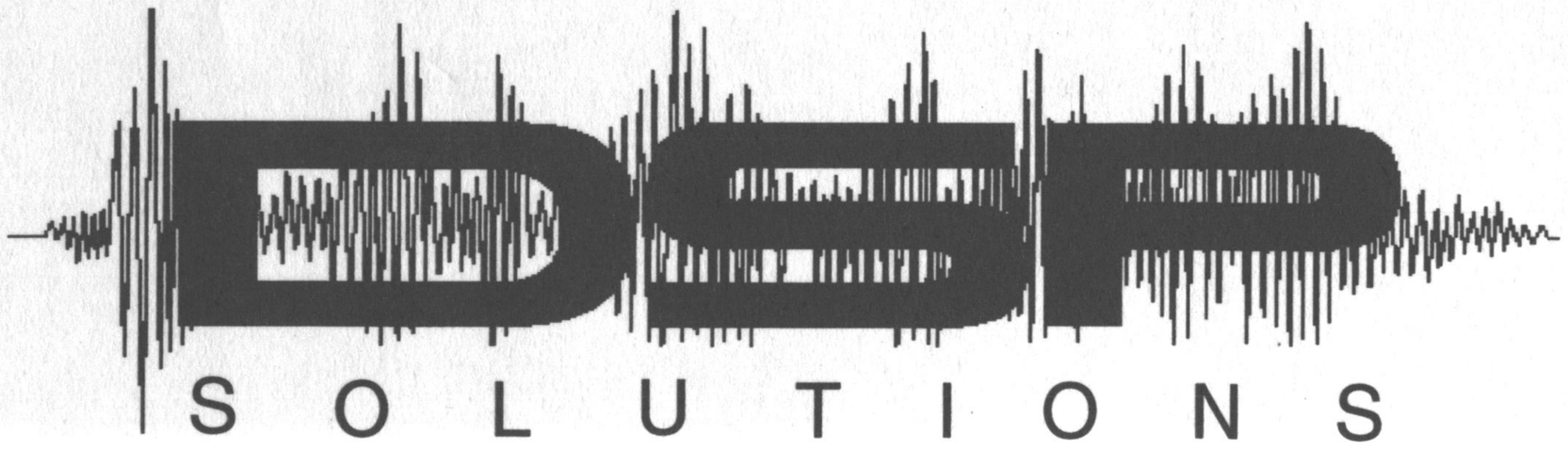
DigiPlay 14

Operation 15

Examples 15
Command Summary 16
DigiRec 19
Operation 19
Examples 19
Command Summary 20
DOStalk 22
Operation 22
Command Summary 23
DOSreader 24
Operation 24
Examples 27
Command Summary 27
WinReader 29
Operation 29
Command Summary 29
Lotus Sound™ 30
Show & Tell for Kids™ 30
Troubleshooting 31
Error Messages 36
System Checkout Procedure 39
Appendices 42
Technical Specifications 42
General Features 42
System Configurations 42
Hardware Specifications 43
Playback and Recording 44
DigiRec / DigiPlay Audio File Formats 45
DigiRec / DigiPlay Error Codes 46
Glossaryof Sound-Related Terms 47
Technical Support 50

PORT•ABLE Sound Plus™

User Guide



2464 Embarcadero Way
Palo Alto, CA 94303
Voice: 415 494-8086
Fax: 415 494-8114
Tech. Support: 415 494-8088

Technical Support

If you have questions about PORT•ABLE Sound Plus™ and you can't find the answers in this manual, call or fax our Technical Support Department:

(415) 494-8088 (voice)

(415) 494-8114 (fax)

Help is available during regular business hours (Pacific Time).

When you call, fax or write to us, please include the following information:

- The type of hardware you are using:

  Processor (386, 486; which variety?) amount of RAM, size of your hard disk, amount of free space.

- Version of DOS and Windows™ you are running.

- Date when you bought PORT•ABLE Sound Plus™; also the invoice number or the program's serial number.

- Specific details about your problem:

  When the problem occurs, what exactly are YOU doing? What are you trying to accomplish? Which tools are you using? What messages (if any) did you see on the screen? Can you make the problem occur repeatedly?

When you call, sit at your computer, up and running, so we can talk you through the problem and the solution.

Product Description

PORT•ABLE Sound Plus™ is the complete external Sound Solution for IBM PC and compatible computers. PORT•ABLE Sound Plus™ is based on advanced DSP technology and supports stereo playback of 16 bit digitized audio, 14 bit recording, and Sound Blaster™ / AdLib® compatible music synthesis. PORT•ABLE Sound Plus™ also provides real-time compression and decompression of industry-standard ADPCM sound formats.

Installing and operating PORT•ABLE Sound Plus™ is simplicity itself. PORT•ABLE Sound Plus™ plugs into a parallel port on an IBM PC or compatible computer. It operates on an AC/DC power adapter or on batteries.

PORT•ABLE Sound Plus™, the Hardware

PORT•ABLE Sound Plus™ consists of the base unit, which has the following hardware features:

- Connector to the parallel port of your PC.
- Smart parallel port pass-through connector for your printer.
- Mic jack for an external mono electret microphone.
- Audio-In jack for direct recording from CD, tape player or other external audio source.
- Stereo Audio In cord for converting between phono (RCA) and headphone-type jacks.
- Stereo Line-Out jack (to drive amplifiers that accept audio at "line" levels, such as the AUX jack on most stereo systems; this jack does not satisfactorily drive headphones, speakers, or active speaker sets that are designed to be connected to headphone jacks).
- RJ-45 jack for connection to the speaker unit; also, stereo audio output to active speakers.
- 9 volt input jack for AC/DC adapter.

.

The PORT•ABLE Sound Plus™ speaker unit offers the following additional hardware features:

- High quality internal speaker
- Built-in omni-directional microphone (mono)
- Volume control knob
- Power on/off switch with LED indicator
- Jack for headphones (mono audio output only)
- Bay for six standard AA-size alkaline or NiCad batteries

This complete and very compact configuration is ideal for a truly portable environment, such as a notebook computer.

What You Need to Use PORT•ABLE Sound Plus™

To use PORT•ABLE Sound Plus™, you need an IBM PC or compatible personal computer, equipped as follows:

To Run MS-DOS™ Audio Applications

- MS-DOS™ or PC-DOS™ v3.3 or higher
- 8086, 8088, 80x86 CPU
- 640KB RAM minimum
- Parallel port

To Run Windows™ Audio Applications

- Microsoft® Windows™ v3.1 or later
- 80286 or higher CPU
- Parallel port

To Run Sound Blaster™- and AdLib®-compatible DOS software

- MS-DOS™ or PC-DOS™ v3.3 or higher
- DSP Solutions™ BlasterMaster program or Microsoft® Windows™ v3.1
- 80386 or higher CPU
- 2MB RAM minimum
- Parallel port

Compatibility

Under Windows™, PORT•ABLE Sound Plus™ works with all applications that display the MultiMedia PC symbol (MPC). Windows™ programs that do not display the MPC symbol are not guaranteed to work with PORT•ABLE Sound Plus™.

Under DOS, PORT•ABLE Sound Plus™ works with programs that specify compatibility with the DSP Solutions PORT•ABLE Sound Plus™ device. Using the DSP Solutions BlasterMaster program, the PORT•ABLE Sound Plus™ also works with most DOS programs that support the Creative Labs Sound Blaster™ board. In addition, the PORT•ABLE Sound Plus™ unit directly supports a number of programs from manufacturers of DOS Educational and Game software. Check the manuals of the individual programs for a list of sound devices supported.

DSP Solutions Technical Support also maintains a continuously expanding list of applications that we know to be compatible with the PORT•ABLE Sound Plus™ unit.

PORT•ABLE Sound Plus™ Package Contents

The PORT•ABLE Sound Plus™ package contains the following items:

1. PORT•ABLE Sound Plus™ base unit.
2. 9 volt AC/DC adapter.
3. (3-inch) RJ45-to-headphone jack adapter cable.
4. (3-foot) Headphone-to-headphone audio patch cable.
5. PORT•ABLE Sound Plus™ diskette.
6. Show & Tell for Kids™ user's manual.
7. This manual.
8. PORT•ABLE Sound Plus™ speaker unit.

PORT•ABLE Sound Plus™, the Software

The PORT•ABLE Sound Plus™ diskettes includes the following drivers and applications.

Drivers

The PORT•ABLE Sound Plus™ drivers for Windows™ provide support for WAVE and MIDI files.

The PORT•ABLE Sound Plus™ drivers for DOS provide audio file support for DOS programs.

The DSP Solutions BlasterMaster program lets you use your PORT•ABLE Sound Plus™ unit with Sound Blaster™ and AdLib® programs running on DOS PCs (with at least a 386 CPU and 2 MB of RAM).

Windows™ Applications

Lotus Sound™

Lotus Sound™ is a sound recorder utility for Windows™. It is used for playback and recording of digitized audio. With this utility, you can create, edit, save and play Windows™ WAVE sound files through the PORT•ABLE Sound Plus™ unit.

Lotus Sound™ is an MPC program that provides sound object linking and embedding (OLE) capability. This capability means that you can include pre-recorded sound clips or audio 'post-it' notes in Windows™ documents created by applications that support OLE (such as Lotus 1-2-3 for Windows™, Microsoft® Word for Windows™, Microsoft® Excel™ for Windows™, and many other similar programs).

Show & Tell for Kids™

The DSP Solutions Show & Tell program is an easy-to-use MPC compatible Multi-Media authoring tool for Windows™. It comes with a variety of clip art and clip sounds from ProSonus to help make your presentations shine.

The Show & Tell version included with the PORT•ABLE Sound Plus™ package is a fully functional version of the retail program, with a limit of 10 slides per presentation. An upgrade to the full package is available from DSP Solutions for a nominal extra cost. See the package insert for details.

DOS Applications

The DigiPlay and DigiRec applications provide complete playback and record facilities for DOS users. DigiRec records sound files in a number of different data compression formats and sampling rates. DigiPlay recognizes and plays a wide variety of standard sound file formats, including the Windows™ WAVE file format.

Text-to-Speech Utilities

Programs that can read text aloud represent a very useful application of digitized sound technology. For example, you now have a reliable companion, ready at your command, that will read back to you that long list of numbers and other data that you must make sure you typed in correctly.

DSP Solutions licenses the First Byte Corporation's ProVoice system which DSP Solutions uses to create high-quality text-to-speech applications using an industry standard for speech synthesis.

For DOS systems, PORT•ABLE Sound Plus™ is packaged with two useful utilities, the DOStalk text screen reader and the DOSreader ASCII text file reader. The DSP Solutions DOStalk text screen reader is perfect for proofing blocks of data entered in a DOS spreadsheet such as Lotus 1-2-3. DOStalk is a memory resident program (TSR) that pops up whenever you need it by using a user-definable hot-key sequence. Similarly, DOSreader will read an entire ASCII text file aloud for you.

For Windows™ systems, PORT•ABLE Sound Plus™ is packaged with the WinReader text file reader. It reads aloud any portion of an open text file.

Diagnostics

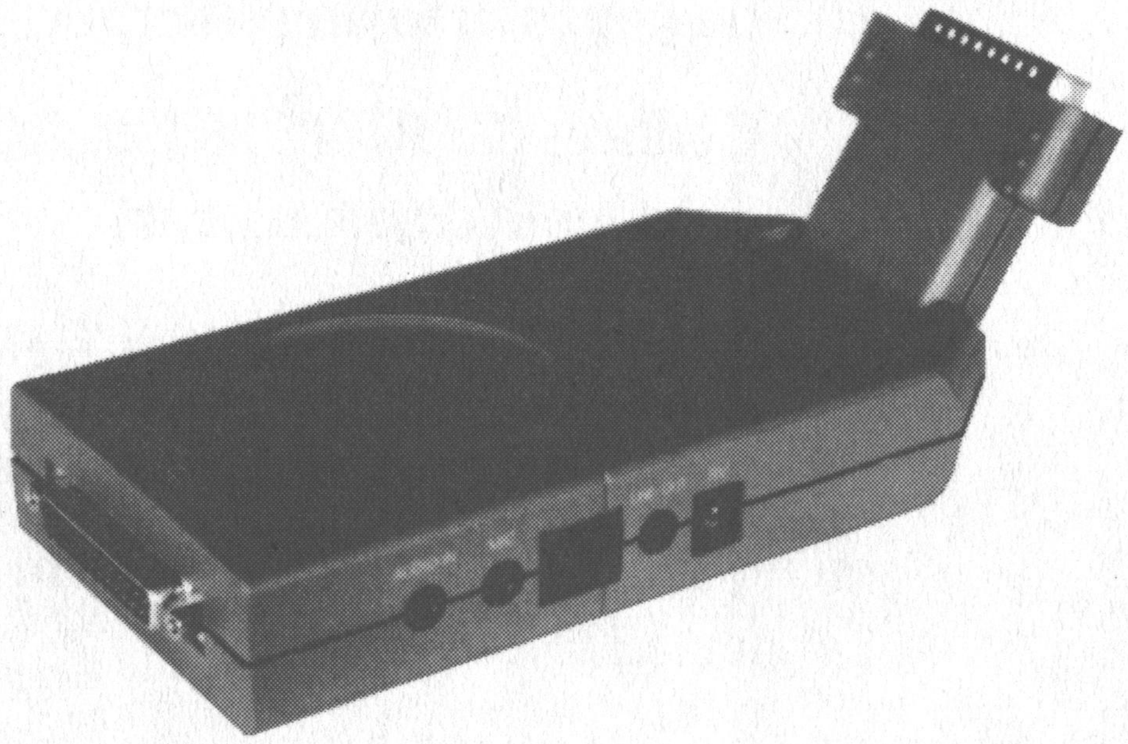
The PORT•ABLE Sound Plus™ DGSetup program is a diagnostic that can help you troubleshoot your unit.

DGSetup is run automatically when you install from DOS. It must be run explicitly if you install from Windows.

Installation Instructions

The PORT•ABLE Sound Plus™ package contains everything you need to play and record sound in both DOS and Windows™. Installing the necessary software is easy, and should be done from both DOS and Windows™ if you want to run both types of programs. (You can install the DOS drivers from within Windows™, but you have to be in Windows™ to install the Windows™ drivers.)

The procedure to install PORT•ABLE Sound Plus™ takes less time than you need to read the following instructions.



Hardware Installation

Connecting to the Computer

The PORT•ABLE Sound Plus™ base unit (the part with the swivel parallel connector) plugs into a parallel port on the back of an IBM PC or compatible computer.

You may want to use a DB-25 male-to-female cable, wired straight through, so you can bring the base unit to the front.

On PCs with more than one parallel port, you can connect to LPT1, LPT2, or LPT3.

If only one printer port is available and you want to have access to a printer, you can plug the printer onto the pass-through connector at the other end of the base unit. The printer may be used any time PORT•ABLE Sound Plus™ is not actually playing sound, even when the base unit is turned off.

Connecting the Base and Speaker Units

The PORT•ABLE Sound Plus™ speaker unit (the part with the easel stand rear cover) plugs into the side of the base unit, via the RJ-45 (8-pin telephone type) connector.

The speaker unit should be connected or disconnected only with the power switch OFF (fully out) and the DC Power adapter cable removed from the base unit.

Connecting to Audio Systems

You can use the base unit to play the sounds generated by computer programs and games:

- Connect the Line-Out jack of the base unit to an Audio In jack on your stereo amplifier; or
- Connect the RJ-45 jack to the Audio In of active speakers using the supplied adapter cable.

If you want to use headphones, you can plug a mono or stereo headset into the Headphone jack of the speaker unit (but you will hear only mono sound). If you want to hear stereo sound, take the audio for the stereo headset from the stereo system that you connected to the base unit.

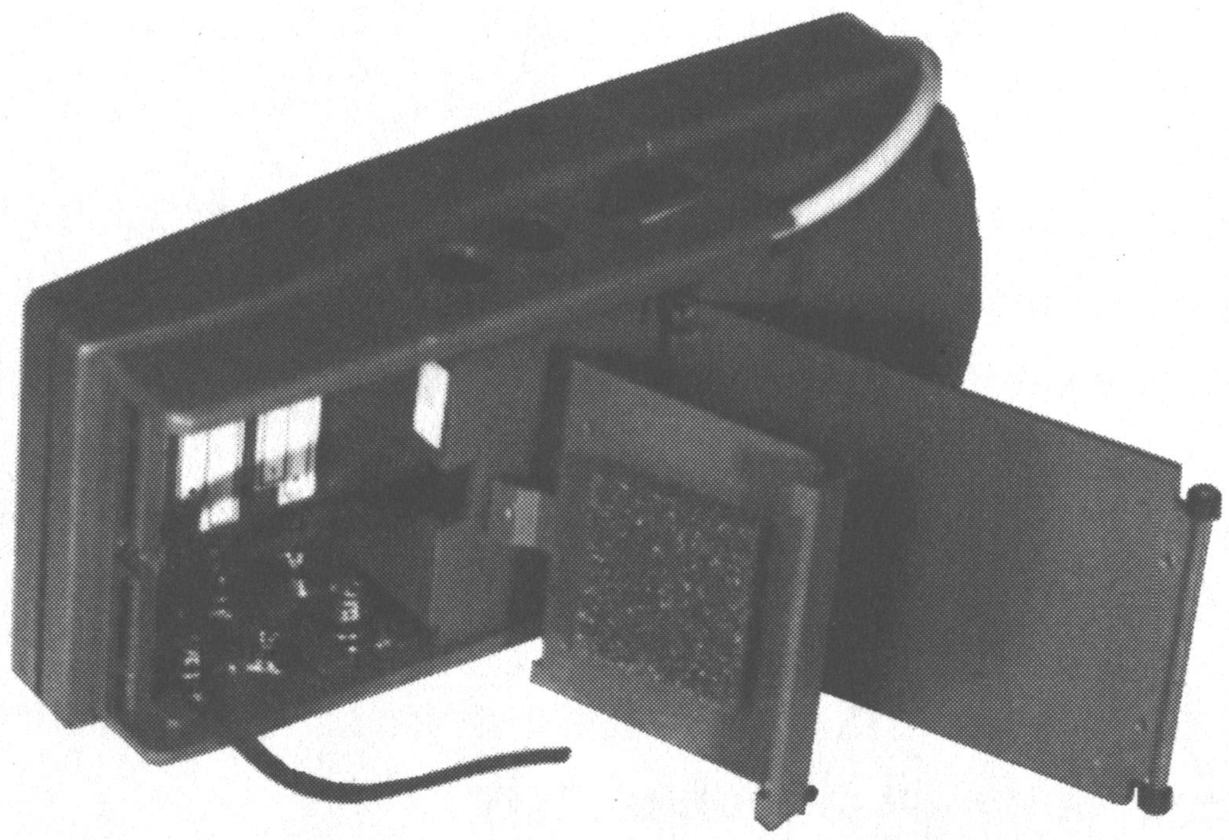
If you want to record live sound, just use the built-in microphone in the speaker unit, or plug an external electret microphone into the Mic jack of the base unit.

If you want to record directly from CD, tape player or other external audio source, plug the Audio-Out of the source device into the Audio-In jack of the base unit.

If you are using standard audio cables with miniature phono (earphone) connectors, use the Stereo Audio Out cord (included in the PORT•ABLE Sound Plus™ package) for converting between RJ-45 and earphone-type jacks.

Replacing the Batteries

The speaker unit accepts two rows of three batteries each. Note the alternating pattern of their terminals (back row: – + –, front row: + – +, when looking into the unit as pictured below).



Software Installation

The installation procedure is slightly different for DOS and Windows™. If you start from DOS, you will install only the DOS drivers. If you start from Windows™, you will install both DOS and Windows™ drivers.

DOS Installation Procedure

Place the disk labeled PORT•ABLE Sound Plus™ Disk #1 in drive A or drive B of your computer.

At the DOS prompt, type

```
A:INSTALL
```

(or **`B:INSTALL`**, if applicable), and press the Enter key.

The INSTALL program displays a prompt to let you change the directory in which it will install the program files. It shows you the names of the files it decompresses and copies into this directory, and tells you when to insert the next diskette. Just follow the prompts.

After the installation program has finished, run the PORT•ABLE Sound Plus™ setup program as described below.

DOS Setup Procedure

The PORT•ABLE Sound Plus™ DGSetup program for DOS installations tests the PORT•ABLE Sound Plus™ device and its connection to the computer. It also tests for the presence of hardware conflicts that may cause problems in your using the device.

DGSetup creates an initialization file (DGSPEECH.INI) that will be used at subsequent startup of the audio, speech generator and Sound Blaster™ emulation drivers. The drivers require the presence of this file in the same directory as the drivers. For this reason, we recommend that you leave DGSetup and the drivers in their own directory after installation.

You must run DGSetup at least once before loading any of the DOS drivers. At the DOS prompt, type:

```
DGSETUP
```

The program displays a screenful of information about your system, and a number of self-explanatory messages if it discovers anything questionable about your system.

Windows™ Installation Procedure

The Windows™ installation procedure consists of two parts: installing PORT•ABLE Sound Plus™, and installing Show & Tell for Kids™.

Install PORT•ABLE Sound™

Start Windows™.

Place the disk labeled PORT•ABLE Sound Plus™ Disk #1 in drive A or drive B of your computer.

Select Run... from the File menu of either the Program Manager or the File Manager programs.

Into the text box labeled “command line,” type:

```
A:INSTALL
```

(or B:INSTALL, if applicable), and press the Enter key or click on the OK button.

The INSTALL program displays a prompt to let you change the directory (C:\portsnd) in which it will install the program files. It shows you the names of the files it decompresses and copies into

this directory, and tells you when to insert the next diskette. Just follow the prompts.

Install Show & Tell for Kids™

After installing PORT•ABLE Sound Plus™, install the demo version of the Show & Tell for Kids™ program from the other two diskettes.

Place the disk labeled Show & Tell #1 in drive A or drive B of your computer.

Select Run... from the File menu of either the Program Manager or the File Manager programs.

Into the text box labeled "command line," type:

```
A:INSTALL
```

(or B:INSTALL, if applicable), and press the Enter key or click on the OK button.

The INSTALL program displays a prompt to let you change the directory (C:\showntel) in which it will install the program files. It shows you the names of the files it decompresses and copies into this directory, and tells you when to insert the next diskette. Just follow the prompts.

Technical Support

If you have problems installing DSP Solutions hardware or software, call the Technical Support hot line (see instructions at end of this manual).

Operating Instructions

The operation of the PORT•ABLE Sound Plus™ hardware is trivial (turn on the power, for example). This chapter describes the use of the PORT•ABLE Sound Plus™ system software to record and play sounds under the control of DOS and Windows™ applications that are included in the PORT•ABLE Sound Plus™ package.

Sound Blaster-Compatible Applications

When you are running a program that uses sound, typically the application asks you what sound card is installed in your system, and provides a list of sound cards the application supports.

If *Digispeech*, *DSP Solutions*, or *PORT•ABLE Sound Plus*™ is not one of the options in this list, then select the "Sound Blaster™" option. PORT•ABLE Sound Plus™'s compatibility with Sound Blaster™ will ensure that the application program will play normally with your PORT•ABLE Sound Plus™ unit. If multiple Sound Blaster™ devices are listed, select the basic Sound Blaster™, *not* the Sound Blaster PRO™ or other variation.

Sound Blaster Emulation from Windows™

1. When running under Windows™ in enhanced mode, execute the MS-DOS™ Prompt application by double-clicking on the MS-DOS™ Prompt icon in the MAIN program group.

2. Change to the appropriate program group and execute the application program in the normal way.

Sound Blaster Emulation from DOS

When running without Windows™, the DSP Solutions BlasterMaster program must be used to provide Sound Blaster™ compatibility for DOS programs. When installing programs that use sound, be sure to load BlasterMaster before the installation process. The BlasterMaster program can be used in two ways.

1. If it started without parameters, BlasterMaster takes over DOS and then returns to the user. DOS commands continue to act normally, but programs that require the Sound Blaster™ card will instead play sound through the PORT•ABLE Sound Plus™ unit.

The following command sequence illustrates the use of BlasterMaster in this way.

```
C:\> BMASTER

C:\> (DOS program/game)
```

When you no longer need Sound Blaster™ compatibility, you can unload BlasterMaster from memory:

```
C:\> BMASTER /U
```

2. The BlasterMaster program may also be used to run a single DOS program, returning control to normal MS-DOS™ as soon as the DOS program has finished:

```
C:\> BMASTER filename
```

Some ill-behaved DOS programs (particularly some complex game programs) will not work with either the MS-DOS™ Prompt application in Windows™ or the BlasterMaster software. Symptoms range from no sound to 'locking up' the computer. These programs use undocumented DOS features that are not fully supported by the DOS-extensions or they manipulate the Sound Blaster™ card in non-standard ways.

DSP Solutions has done its best to 'work around' ill-behaved programs that we have encountered, but there are almost certainly programs that still do not work properly. If you have an application that does not work in the Windows™ MS-DOS™ Prompt application, try using it with the DSP Solutions BlasterMaster driver. If it still does not operate correctly, contact DSP Solutions's Technical Support department to see if we have a fix for the particular problem you have encountered. Please be ready with the program name, version number, and all appropriate information about your computer setup. See the section below on problem solving.

PORT•ABLE Sound Applications

DSP Solutions provides several useful utilities that operate using our own DOS driver, PDIGI, or the First Byte speech engine and sound driver. This section describes loading the drivers for those utilities, as well as using the applications themselves.

Loading DOS drivers

1. Digitized Audio and Synthesized music driver

The DigiPlay and DigiRec utilities require the use of the DSP Solutions PDIGI driver. The driver may be loaded in one of two flavors. The basic flavor allows only digitized audio playback and recording. The second flavor allows the digitized audio functions, but adds support for Sound Blaster synthesized music (.CMF) files.

The following commands illustrate loading the PDIGI driver from the DOS prompt.

```
PDIGI       Digitized audio only
PDIGI /M    Digitized audio and .CMF
            synthesized music
```

Either command may optionally be placed in your AUTOEXEC.BAT file so that the driver will be available at all times.

2. First Byte Text-to-Speech driver

The Digiplay utility supports the First Byte Text-to-Speech engine and audio driver. DSP Solutions includes these drivers and a batch file for loading them from the DOS prompt:

```
LOAD
```

Due to their large size, It is not recomended that the LOAD command be placed in the AUTOEXEC.BAT file.

Unloading DOS drivers

When you have finished playing and /or recording sound, you can free up RAM space by unloading the drivers. At the DOS prompt, type:

```
UNLOAD      (If you loaded speech
            drivers via LOAD)
PDIGI /U    Unload the audio driver.
```

UNLOAD is a batch file that unloads the speech drivers installed by LOAD.

DigiPlay

The following command sequence summarizes the use of the DigiPlay program:

PDIGI	Load the audio driver.
LOAD	Load the speech generator (optional).
DigiPlay <flags> <filenames>	
	Specify the playback operation and play files.
UNLOAD	Unload the speech generator (if used).
PDIGI /U	Unload the audio driver.

The commands and their options are explained in detail below.

Operation

1. Load the required drivers.

See previous section for instructions on loading the appropriate DOS drivers.

2. Run DigiPlay.

Start DigiPlay by typing a command of the? following form at the DOS prompt:

```
DigiPlay <flags> <file1 file2 ...>
```

The two parameter types of the DigiPlay command are:

<flags>:

Optional commands to control the operation, as described below.

File names:

The name or names of the sound files that you want DigiPlay to play. One or more files will be played in the order you specify. Wildcards are allowed.

Examples

The following examples assume you are in the PORT•ABLE Sound Plus™ installation directory and have loaded the correct combination of audio and text-to-speech drivers. See the 'Loading DOS Drivers' section above.

To play a digitized audio file on your PORT•ABLE Sound Plus™ , type:

```
DIGIPLAY BREEZE.WAV
```

To make the system greet you with spoken words, type:

```
DIGIPLAY /T:"GOOD MORNING"
```

To make the system read an entire file to you and display the file as it is spoken, type:

```
DIGIPLAY /FTD README.TXT
```

To make the system play some music and read a file to you, type:

```
DIGIPLAY /T BREEZE.WAV README.TXT
```

or

```
DIGIPLAY /T *.WAV *.TXT
```

or

```
DIGIPLAY *.*
```

DigiPlay is "smart" enough to use the text-to-speech drivers only when they are needed, and to ignore files that are not playable.

Command Summary

Command line flags for the DigiPlay utility are as follows:

Forced File Format Commands

The following command line flags force DigiPlay to ignore any header information and play the file as if it contained the requested audio format data appropriate to the flag that you specify. They are useful for playing sound files recorded using other sound devices and/or programs that use their own file header format.

The parts of these flags have the following meaning:

a-x	The second character indicates the option you want;
<r>	This optional parameter represents a sampling rate if you also want to specify the sampling rate, enter an integer value between 4000 and 44100 in place of <r>.
/Fa<r>	Force playback as a-law PCM.
/Fi<r>	Force playback as Intel DVI ADPCM.
/Fo<r>	Force playback as OKI ADPCM.
/Fp<r>	Force playback linear PCM.

/Fpf<r>	Force playback as linear 16-bit PCM (convert 16-bit to 8-bit).
/Fpx<r>	Force playback as linear 16-bit PCM
/Fs<q><r>	Force playback as Sound Blaster™ ADCPM. Replace <q> with H, M or L to specify the sound quality (high, medium or low). For example, enter the switch as /Fsh8000
/Ft<d>	Force playback using text-to-speech synthesis. Type "d" if you want to see the text displayed on the screen as it is being spoken. For example, /Ftd
/Fu<r>	Force playback as μ-law PCM.

Other Commands

The following command line flags allow additional control over the program operation.

/T<d>	Read text files aloud. Type "d" if you want to see the text displayed on the screen as it is being spoken. For example, /Td
/T:string	Read a text string aloud. Type ":" and the text you want to hear being spoken. For example, /T:supercallafragelistickexpialladocious
/Gg	Set the playback gain (enter a number between 0-31). The default is 21, representing a 1:1 gain.
/Ix	Ignore the x leading bytes of file. This option is handy for skipping the header portion of a non-standard format audio file. When using a force format switch, DigiPlay will treat the entire file as audio data, resulting in a harsh clicking sound at the beginning of the playback if the file contains header information.

If the size of the header is known, you can specify the exact length, otherwise you must experiment.

/L — Loop playback of all files.

/Q — Play back in quiet mode; i.e., without sign-on messages.

/Rr — Force playback rate to r (this is a global specification applicable to all options).

The playback rate may be specified as a value between 4000 and 44100 samples per second, unless otherwise noted. Without this option, playback defaults to 8000 bytes per second.

/S — Play back as stereo. For 8 or 16-bit linear PCM and 8-bit μ-law formats only. You can also specify the sampling rate; however, your choices are restricted to 11025, 22050 or 44100 Hz.

For example, enter the switches

/R44100 /S

to specify stereo playback at 44100 Hz.

/X — Mix audio from the Line-In jack with the audio being played back.

Function Keys During Playback

During operation, playback may be affected using the following keys.

ESC — Exit DigiPlay immediately.

\+ — Increase the playback volume.

P — Pause (stop playback).

X — Mix with Line-In audio (toggle on/off).

Space Bar — Abort playback of current file (play next file).

– — Decrease the volume.

R — Resume playback after pause.

DigiRec

The following command sequence summarizes the use of the DigiRec program:

PDIGI	Load the audio driver.
DigiRec <switches> <filename>	Specify a playback mode, play files.
PDIGI /U	Unload the audio driver.

The commands and their options are explained in detail below.

Operation

1. Load the required drivers.

See 'Loading DOS Drivers', above, for instructions.

2. Run DigiRec.

Type a command of the following form at the DOS prompt:

```
DIGIREC <flags> filename
```

The two parameter types of the DigiRec command are:

<flags>:

Optional commands to control the operation, as described in the command summary below.

File name:

The name of the sound file that you want DigiRec to record (the file in which to save the sounds you want recorded). No wildcards are allowed.

Examples

The following examples assume you are in the PORT•ABLE Sound Plus™ installation directory and have loaded the correct audio drivers. See the 'Loading DOS Drivers' section above.

To record a 5 second sound bite at the default 8 kHz sampling rate and save it in a file, type:

```
DIGIREC TEST.WAV
```

To record a 10-second sound byte at the higher sampling rate, type:

```
DIGIREC /T10 /R11025 TEST.WAV
```

Command Summary

Command line switches for the DigiRec utility are as follows:

Forced File Format Commands

These options create audio files with header information compatible with the corresponding DSP Solutions file types. Note that the utility does not assign file extensions, so it is the responsibility of the user to specify the correct extension on the command line.

If none of these options are specified, recording defaults to PCM at 8000 bytes per second. For CVSD types, the recording rate is specified as a value between 0 and 5, corresponding to one of 6 playback rates between 1800 and 4800 Bytes per second. The default CVSD rate is 5 (4800 Bytes Per Second).

The parts of these switches have the following meaning:

a-x	The second character indicates the option you want;
<r>	This optional parameter represents a sampling rate (if you also want to specify the sampling rate, enter the integer value 8000 or 11025 in place of <r>);
/Fi<r>	Force recording as Intel DVI ADPCM.
/Fo<r>	Force recording as OKI ADPCM.
/Fp<r>	Force recording linear PCM.
/Fpx<r>	Force recording as linear 16-bit PCM.
/Fs<q><r>	Force recording as Sound Blaster™ ADCPM. Enter H, M or L to specify the sound quality (high, medium or low). For example, enter the switch as /Fsh8000
/Fu<r>	Force recording as μ-law PCM.

Specify File Header

/Hd	Use the DSP Solutions header (all formats)
/Hv	Use the Creative Labs .VOC header (PCM and ADPCM only)
/Hw	Use the Windows™ WAVE header. This is the default (compatible with every format except Sound Blaster™ ADPCM).

These flags create headers for your sound file, of the type appropriate to the /F and /H flags that you specified. For example, if you specified /Fp (linear PCM) and /Hd (DSP Solutions header), then your file will get the DSP Solutions header for a linear PCM file. The only exception that there is no WAVE version of Sound Blaster ADPCM.

Other Commands

The following command line flags allow additional control over the program operation.

/Gg	Set the recording gain (enter a number between 0-31). The default is 21, representing a 1:1 gain.
/Q	Record in quiet mode; i.e., without sign-on messages.
/Rr	Force playback rate to r (type in 8000 or 11025).
/T<x>	Record for x seconds. If you do not enter a value, the default is 5 seconds. The command will accept values up to a 32-bit integer (maximum recording time is set by your available disk space).

Function Keys During Recording

During operation, recording may be affected using the following keys.

ESC	Exit DigiRec immediately. All sound recorded to that point is saved.
+	Increase the recording volume.
P	Pause (stop recording).
–	Decrease the volume.
R	Resume recording after pause.

DOStalk

The following command sequence summarizes the use of the DOStalk program:

LOAD	Load the speech drivers.
DOStalk	Run DOStalk program.

(open text-mode application)

(DOStalk commands)

(exit application)

DOStalk /U	Unload DOStalk program.
UNLOAD	Unload the speech drivers.

The commands and their options are explained in detail below.

Operation

1. Load the required drivers.

See 'Loading DOS Drivers', above, for instructions.

2. Run DOStalk.

At the DOS prompt, type:

```
DOSTALK
```

3. Open a text-mode application.

Run your favorite DOS text-mode spreadsheet (or other) application program.

Open a data file of that application and display it on the screen.

4. Display the DOStalk menu.

With the data to be proofed visible on the screen, press the DOStalk hot-key (Alt-S). A special menu will pop up with selections for different pause options (see Commands, below).

5. Select the portion of text to be read aloud.

Select the option by pressing a single key (L, P or R) representing the pause option and the menu is replaced by a single reverse video cursor.

Using the keyboard arrow keys, position the cursor at the top left character of the column or row to be proofed, then press the Enter key.

Move the cursor to the bottom right character of the column or row to be proofed. Note that a block of characters on the screen are highlighted in reverse video.

This block represents the information to be proofed.

6. Proofread the text.

Press the Enter key again. DOStalk will begin to read aloud the column or row in the mode selected from the initial menu.

You can follow along on your hard copy, and verify that the two sets of information are the same.

Note that DOStalk quits by itself after reading the text you selected.

Command Summary

Text Selection

<Enter>	Start/stop marking text (toggle).
Arrow Keys	Move cursor to mark a region in the text.

Pause Options

<Enter>	Speak continuously.
L	Pause between lines.
P	Pause between words.
R	Re-use last selection.

In Pause Mode

<Enter>	Play next word or line.
R	Repeat last word or line.
Space	Skip next word or line.

DOSreader

The following command sequence summarizes the use of the DOSreader program:

LOAD	Load the speech drivers.
DOSREAD	Run DOSRead program.
UNLOAD	Unload the speech drivers.
	-- OR --
DR filename	Run DOSreader to read a file aloud.

Operation

1. Load the required drivers.

See 'Loading DOS Drivers', above, for instructions. Optionally, the DR command loads the drivers for you. See below.

1. Run DOSreader.

Start DOSreader by typing a command of the following form at the DOS prompt:

```
DOSREAD filename
```

- OR -

```
DR filename
```

The first form is used if the drivers were loaded in step one. The second form automatically loads and unloads the required drivers and runs the DOSREAD program.

The only parameter of the DOSreader command is:

File name:

The name of the file that you want DOSreader to speak. No wildcards are allowed.

After you press the Enter key, DOSReader is loaded and the file you specified is displayed as a full screen of text.

2. Select the portion of text to be read aloud.

You can use the mouse or the keyboard to select text for speaking.

Select text for speech by using the same key operations as in the Windows™ NOTEPAD editor. If you have a mouse driver loaded, the mouse may also be used.

To select text with the mouse, move the mouse to the starting position of the text you want to select. Click and drag the mouse to the ending position of the text you want to select. As you drag the mouse, the selected text becomes highlighted. To use the keyboard to select text, use the edit keys to position the cursor to the starting position of the text you want to highlight. Hold down either shift key, and use the edit keys to mark the end of the text you want to select. As you hold down the shift key, the selected text will become highlighted.

If you don't select any text, the entire file will be spoken.

3. Speak the text.

When you have selected text, press **Enter** or click on the **Read** item in the status bar at the bottom of the screen. After all selected text has been read or speech is aborted , the selected text will remain selected. Abort speech by pressing **Esc** or clicking on the **Stop** item in the status bar at to bottom of the screen.

When there is no selected text, simply press **Enter** or click on the **Read** item in the status bar at the bottom of the screen. Text will be read starting with the word at the current cursor location. The text will continue to be read until the end of the file is reached, **Esc** is pressed, or the **Stop** item in the status bar at the bottom of the screen is clicked. As speech is read, the cursor is advanced. This allows you to continue reading from the point where speech was stopped.

3. Menu Options

The menu bar at the top of the DOSReader screen allows the user to open multiple text files, customize the speech sound, and manipulate the multiple text file windows.

The **File** menu contains the following sub-commands:

Open	Open a new text file. A dialog box is displayed that offers the user a list of the files available to DOSReader. Use the TAB and arrow keys to move between fields and select a filename. Then press the OK button to accept, or the Cancel button to reject the choice.
Close	Closes the file in the currently active window. The active window is the one that contains scroll bars and a cursor.

DOS Shell	Temporary DOS session. Can be used to copy files or other operations. DO NOT load any TSR programs in a DOS Shell. Type Exit and press the Enter key to return to DOSReader.
Exit	Exit DOSReader. Same as Alt-X.

The **Options** menu contains the following sub-commands:

Pitch	Select a pitch for the speaking voice. Range is 1 to 10, from lowest pitch to highest pitch. The default is 6. Press the OK button to accept, or the Cancel button to reject the choice.
Speed	Select a speed for the speaking voice. Range is 1 to 10, from lowest speed to highest speed. The default is 6. Press the OK button to accept, or the Cancel button to reject the choice.
Volume	Select a volume for the speaking voice. Range is 1 to 10, from off to highest volume. The default is 6. Press the OK button to accept, or the Cancel button to reject the choice.
Filter	Select sets of symbols and punctuation to exclude from speech. Useful when math symbols or other punctuation are used in long sequences for non-standard reasons such as box-drawing. Up to 4 groups of characters may be excluded. Press the OK button to accept, or the Cancel button to reject the choice.

The **Window** menu contains the following sub-commands:

Next	When more than one text file is loaded, moves the active cursor to the next window in the list. If text window only displays one file (Zoomed) the new file is brought to the top.
Zoom	When more than one text file is loaded, and more than one window is displayed, the active window is made full size. All other windows are hidden.

Tile	When more than one text file is loaded, each file is displayed in an non-overlapping window. All files loaded are at least partially visible. Clicking on a window causes that window to become the active window.
Cascade	When more than one text file is loaded, each file is displayed in an overlapping window. All files loaded are at least partially visible. Clicking on a part of a window brings it to the top of the stack and makes it the active window.

Examples

To read the entire contents of a text file, type

```
DR README.TXT
<Enter> (or click on Read button)
```

To read a selected portion of the text file, type:

```
DR README.TXT
then:          cursor movements to
               select portion of text
               (see below)
<Enter> (or click on Read button)
```

Command Summary

Cursor Movements to Select Text

Home	Moves cursor to beginning of current line.
Ctrl-Home	Moves cursor to beginning of file.
End	Moves cursor to end of current line.
Ctrl-End	Moves cursor to end of file.
Up arrow	Moves cursor up one line.
Down arrow	Moves cursor down one line.
Left arrow	Moves cursor left one character.
Ctrl-Left arrow	Moves cursor to beginning of previous word.

Right arrow	Moves cursor right one character.
Ctrl-Right arrow	Moves cursor to beginning of next word.
PgUp	Moves cursor up one page (i.e., screenful).
PgDn	Moves cursor down one page (i.e., screenful).

The keypad keys may be used to page through the text file prior to marking.

Speak Selected Text

The following buttons are located at the bottom of the screen and may be activated using the mouse (or by typing the keyboard equivalents).

Speak	(Enter) Speak selected text or entire file.
Abort	(Esc) Stop the speech and quit the program.
Menu	(F10) Highlight the menu selections at the top of the screen. Use the arrow keys to move to the desired menu, then press Enter to drop the menu down.
Exit	(Alt-X) Stop the speech and quit the program.

Operation

1. Run WinReader.

Start WinReader as usual under Windows™ (by double-clicking on its icon, or typing its name into the File Manager's File menu Run... item text field).

2. Select a file to be read aloud.

When WinReader has started, select the text file you want it to read aloud for you: In WinReader's File menu, select the Open... item and select or type in the name of the text file.

3. Select the portion of text to be read aloud.

When the text file is displayed, select the portion of the text you want spoken.

4. Speak the text.

When you have selected the text, click on the Read button to hear it spoken.

Command Summary

Select Text

Select text for speech by using the same keys and mouse operations as in the NOTEPAD editor and most other Windows™ programs.

For additional notes on this topic, see the operating instructions for the DOSreader program, above.

Speak Text

WinReader displays the following buttons for you to control its operation.

Read	Speak the selected text.
Pause	Stop reading text (toggle with Resume button).
Resume	Continue reading text (toggle with Pause button).
Next Sentence	Skip to the next sentence.

Lotus Sound™

Operating instructions are provided in the on-line help file of the Lotus Sound™ program.

Show & Tell for Kids™

Installation and operating instructions are described in the enclosed Show & Tell manual.

Troubleshooting

Please perform the following steps before calling our technical support department.

If your PORT•ABLE Sound Plus™ unit does not appear to work, it may not be a problem with the actual unit. If you find your problem in the following chart, check the corresponding possible cause and possible fix columns. If you do not find your problem in this list, or following the suggestions does not cure the problem, also look at the error messages, and follow the steps in the PORT•ABLE Sound™ Checkout procedure below.

1. No green light on speaker unit.

1. Power switch off.	1. Push power switch.
2. AC Adapter not plugged in.	2. Plug it in.
3. No power to AC socket.	3. Plug AC adapter into good socket.
4. Dead or no batteries.	4. Get good batteries.
5. Speaker unit not plugged into base unit.	5. Plug it in.

2. No sound at all.

1. See problem 1.	1. See problem 1.
2. Bad unit or improperly setup.	2. Follow checkout procedure below.

3. Some kinds of sounds, but not others.

1. Incorrect driver loaded.	1. See the sections titled "1. Load the required drivers" in the Operating Instructions.
2. Program not a MPC compatible program.	2. For Windows™ programs, make sure the program is MPC compatible.
3. Previously installed sound device driver intercepting sound data.	3. Remove any other sound devices or drivers installed previously.

4. The sound is not very loud.

1. Low batteries.	1. Replace them.
2. Volume control turned down.	2. Turn it up (clockwise is louder).
3. Non-compatible active speakers plugged into line-out jack.	3. Check that the active speakers can accept line output (most low-end speaker systems accept only headphone output).
4. Non-active speakers plugged into line-out jack.	4. The line-out jack is not designed to drive non-amplified speakers.

5. The sound is distorted or 'slow'.

1. The computer is running too slow.	1. Check the turbo switch, check that the computer meets the minimum requirements specified in the Technical specifications section.
2. The computer is doing too many other things at the same time.	2. Usually only happens in Windows™. Close some applications and try again.
3. The program is not compatible with the PORT•ABLE Sound Plus™ unit.	3. Check the program manual for compatibility.

6. Works for DOS programs, but not Windows™.

1. The Windows™ drivers have not been loaded.	1. See the section titled “Windows Installation Procedure”.
2. Previously installed sound device driver intercepting sound data.	2. Remove any other sound devices or drivers installed previously.
3. The program is not compatible with the PORT•ABLE Sound Plus™ unit.	3. Check the program manual for compatibility.

7. Works for Windows™ programs, but not DOS.

1. The DOS driver has not been loaded.	1. See the sections titled "1. Load the required drivers" in the Operating Instructions.
2. The program is not compatible with the PORT•ABLE Sound Plus™ unit.	2. Check the program manual for Sound Blaster™ or AdLib® compatibility.

8. This program worked when I was using Sound Blaster™, but not PORT•ABLE Sound Plus™.

1. The BlasterMaster is not loaded, and you are not running under Windows™.	1. See section on running Sound Blaster™ compatible programs.
2. You are running under Windows™, but our driver is not loaded.	2. See the sections titled "1. Load the required drivers" in the Operating Instructions.
3. You are running under Windows™, but not in Enhanced mode.	3. You can check this by selecting the About... entry in the Help menu of the Windows™ Program Manager. See the minimum system requirements section. Consult your Windows™ manual for instructions on running in Enhanced mode.
4. We missed something in our BlasterMaster or Windows™ driver design.	4. Congratulations, we worked hard to make sure this would not happen, but you did it. Call Technical Support and we will try to resolve the problem.

9. Used to work, but doesn't anymore.

1. Interference from newly installed program, driver, or hardware.	1. Remove any newly installed programs or hardware and see if problem goes away.
2. Batteries went dead.	2. Replace batteries.
3. AC Adapter went bad.	3. Follow the checkout procedure below.

4. Unit went bad.	4. Follow the checkout procedure below.
5. See problems 6, 7, and 8.	5. Remove the PORT•ABLE Sound Plus™ unit and drivers. If the problem goes away, see fixes for problems 6, 7, and 8.
6. You have overwritten or deleted some or all of the program files during installation of PORT•ABLE Sound Plus™.	6. Remove the PORT•ABLE Sound Plus™ unit and drivers. If the problem does not go away, try re-installing the program.

10. My (mouse, trackball, modem, etc.) doesn't work when I use PORT•ABLE Sound Plus™.

1. There is a hardware setup or driver conflict.	1. Check the hardware manuals to make sure that you do not have two devices with the same address or interrupt setting.
2. The thing is bad.	2. Follow the checkout procedure for the thing that doesn't work.

11. My computer crashes / locks up / makes funny noises / smokes when I use PORT•ABLE Sound Plus™.

1. There is a hardware setup or driver conflict.	1. See problem #10 fix.
2. PORT•ABLE Sound Plus™ is plugged into something that is not a parallel port.	2. Make sure that PORT•ABLE Sound Plus™ is plugged into a parallel port. If a printer works when plugged into the port, the PORT•ABLE Sound Plus™ unit should also work there.
3. PORT•ABLE Sound Plus™ is bad.	3. Follow checkout procedure below.

12. It works on her computer, but not mine.

1. Her computer configuration is correct.	1. Make sure your hardware and software configurations are as required for PORT•ABLE Sound Plus™. Check the technical specifications. Follow the checkout procedure below.
2. Her computer has different hardware.	2. Remove any hardware that is different from her setup. See problem #10 fix.
3. Her computer has different software.	3. Change your software to match her software. See problem #10 fix.

Error Messages

The DSP Solutions drivers are designed to operate under many possible system configurations that users may create on their systems. As a result, during installation and operation, the drivers check for a variety of conditions that may interfere with the operation of the PORT•ABLE Sound Plus™ unit. The error messages are numerous and generally self-explanatory; they fall into the following categories.

Installation has not been completed, or has been done incorrectly (cannot load driver, cannot find driver, etc.)

This condition should not occur if you let the installation program run automatically; may occur if you are patching up an existing installation and forget to copy over some files.

The universal remedy is to redo the installation and setup procedures more carefully.

Hardware device configuration conflict is detected, or the configuration is not valid.

This condition occurs when two devices are configured the same, or if a device has an invalid hardware address. (In a computer, each device must have a unique, valid base address, interrupt number, and DMA channel number.) The DSP Solutions driver may detect this condition during the installation of PORT•ABLE Sound Plus™ into a system that already has sound and other devices installed in it, or it may detect the conflict during operation, after you have installed other devices into a system that had PORT•ABLE Sound Plus™ already running on it.

To correct a hardware conflict:

- First of all you must know the existing configuration of each device in your system (and you might have to call the dealer or manufacturer for that).
- Then you must know how to change the configuration, both by means of its hardware settings (usually jumpers) and by means of its software setup. Some devices cannot be reassigned; again you may have to call the manufacturer.
- Finally you must reassign the devices (those that you can) to unique addresses in the DOS or Windows™ setup procedures.

If you cannot reassign a device, you must remove it from your system.

See also: Another device is using the same port.

The PORT•ABLE Sound Plus™ device does not respond.

This condition occurs if the device is not connected to your computer, is not powered up, or if the parallel port (to which it is connected) is being used by the printer.

To correct this kind of condition, verify each connection between the PORT•ABLE Sound Plus™ device and your computer (make sure the device has power, is turned on, the parallel port cable is connected.) You may simply have to wait until the printer has finished printing and try again. Or you may have to turn the printer back on – some printers, when turned off, short-circuit the pass-through port on the PORT•ABLE Sound Plus™ device, and thus prevent communication between the device and the computer.

PORT•ABLE Sound Plus™ requires DOS 3.3, or Windows™ version 3.1 running in enhanced mode.

This type of message is displayed if you try to use earlier versions, or if you are not using Windows™ version 3.1 in enhanced mode.

Upgrade to DOS 3.3 or Windows™ version 3.1 and use it in enhanced mode.

Another device is using the same port.

Although you may have taken care of any hardware address conflict that may have existed before, what we have here is two (or more) devices trying to do the same thing in the same place at the same time, such as a third-party sound card and PORT•ABLE Sound Plus™ emulating that card, both playing a file.

In such cases, you must

- Remove the conflicting hardware from your system, and also
- Delete its "virtual" driver from the SYSTEM.INI file in your Windows™ system directory. (Yes, you WILL know more and more about your PC...)

Look in the [Enhanced] section of the SYSTEM.INI file and, using a plain ASCII text editor, delete all audio drivers except the DSP Solutions drivers. (Well, yes, you could decide to keep the others and delete the DSP Solutions drivers, but this is a DSP Solutions

manual, after all...) Do save a copy of the old SYSTEM.INI, just in case.

Printing problems;

PORT•ABLE Sound Plus™ does not respond;

Conflicts between printer and PORT•ABLE Sound Plus™.

1. The printer is trying to print and PORT•ABLE Sound Plus™ is trying to play a file, both via the same parallel port, of course.

   You may simply have to wait until the printer has finished printing and try using PORT•ABLE Sound Plus™ again.

2. You finished printing, turned the printer off, and now PORT•ABLE Sound Plus™ ignores your requests.

   You may simply have to turn the printer back on – some printers, when turned off, short-circuit the pass-through port on the PORT•ABLE Sound Plus™ device, and thus prevent communication between the device and the computer.

System Checkout Procedure

In our experience, the best way to determine the cause of a problem with the PORT•ABLE Sound Plus™ unit is to remove all unknowns from the system. Since every computer has many different possible hardware and software configurations, we suggest starting the computer with a DOS boot diskette.

(A boot disk is created by formatting a blank diskette using the FORMAT /S command.)

Start the computer by placing the boot diskette in drive A and pressing the Ctrl, Alt, and Del keys at the same time, or simply turn the computer on with the boot diskette in drive A.

The PORT•ABLE Sound Plus™ checkout procedure assumes that you are testing the system with the speaker unit attached to the base unit and nothing else plugged into either unit. Once you verify this configuration, you should add other peripherals one at a time until the problem re-occurs.

To run the checkout procedure tests, place the PORT•ABLE Sound Plus™ Disk #1 in drive A and log onto the drive by typing

A: (Enter)

at the DOS prompt. Any commands required by the procedure are contained on this disk.

1. Verify that the PORT•ABLE Sound Plus™ device has power.

Does the green light on the center of the speaker unit light up?

No light:

Make sure that:

- the power switch is turned on (fully depressed)
- the AC adapter is connected to the base unit and plugged into a live outlet (or that the batteries are charged and seated correctly), and the speaker unit is connected to the base unit.

If you still have no power going into the device, call DSP Solutions Technical Support.

Green light is on:

Continue.

2. Verify that the device produces sound.

Press the power button on the speaker unit several times. The power light should go on and off, and you should hear a click from the speaker unit. The volume increases as the knob is turned clock-wise. Try pushing the button with the knob turned as far as it will go, once in each direction. If you don't hear anything, try again with headphones plugged into the speaker unit. When using headphones, DO NOT put the phones on your ears until you try it once or twice. Ear damage could result from playing sound with the volume turned up too loud.

There is no click:

Try again with an active speaker system plugged into the line-out jack of the main unit. (An active speaker system is a system that contains it's own power supply and amplifier.) You can use the auxiliary input of most home stereo systems as an active speaker system.

If you heard the click the from the active speaker but not from the speaker unit, then your speaker unit has a bad speaker or cable to the base unit. Call DSP Solutions Technical Support. In the meantime, enjoy using the device with your external speaker.

If you heard no click in either case, you have a bad speaker unit. Call DSP Solutions Technical Support.

You hear the click:

Continue.

3. Run the resident PORT•ABLE Sound Plus™ diagnostics.

At the DOS prompt, type the command

DGSETUP

This program tests for the presence of a PORT•ABLE Sound Plus™ unit and performs a functional test on the unit. The test results are displayed on the screen and then several sound clips are played.

Unit not found:

Check your hardware setup (for possible bad/missing wiring connections, hardware device address conflicts).

If you started your computer using a boot disk, this probably means there is a conflict with a driver in your normal CONFIG.SYS file, or a program that is loaded in your normal AUTOEXEC.BAT file. Using a text editor (not word processor) such as the EDIT program that comes with MS-DOS™ 5.0, disable all the drivers in your CONFIG.SYS and AUTOEXEC.BAT files. The easiest way is to place the command REM before each line containing a driver or special program.

Unit found but test failed:

Call DSP Solutions Technical Support.

Test passed:

Continue.

4. The PORT•ABLE Sound Plus™ unit has passed all the standard tests.

Restart your computer without the boot disk and then run the SETUP program from the PORT•ABLE Sound Plus™ Disk #1, as in step 3. Enable commands in CONFIG.SYS and AUTOEXEC.BAT one at a time and repeat this step until you find the offending driver or program. Once you have located the problem, you may choose to leave the driver or program disabled, or contact DSP Solutions Technical support to see if there is a known fix for the problem.

Appendices

Technical Specifications

General Features

- Complete integrated external audio solution.
- Microsoft® Windows™ 3.1 compatible.
- Supports all MPC programs designed for Microsoft® Windows™ 3.1.
- Works with both standard and PS/2 Microchannel PCs.
- Supported by Voyetra Sound Factory MS-DOS™ digitized audio/synthesized music drivers.
- Stereo or mono playback, 16 or 8 bits per channel.
- Sampling rates from 4 kHz to 44.1 kHz.
- Superb digital audio quality suitable for business applications.
- External design eliminates noise from internal PC circuits.
- Supports DVI (IMA) ADPCM, OKI ADPCM and Sound Blaster™ ADPCM compression and decompression in real time.
- Simultaneous synthesized music and digitized audio playback.
- Works with Sound Blaster™/AdLib® compatible programs (requires 386 or higher CPU with at least 2 MB RAM memory.)
- Synthesized music, 9 melodic or 7 melodic and 4 percussive voices.
- Software-programmable volume control and recording level control.

System Configurations

MS-DOS™ Audio Applications

- MS-DOS™ or PC-DOS™ v3.3 or higher
- 8086, 8088, 80x86 CPU

- 640KB RAM minimum
- Parallel port

Windows™ Audio Applications

- Microsoft® Windows™ v3.1 or later
- 80286 or higher CPU
- Parallel port

Sound Blaster™- and AdLib®-compatible MS-DOS™ software

- MS-DOS™ or PC-DOS™ v3.3 or higher
- DSP Solutions BlasterMaster program or Microsoft® Windows™ v3.1
- 80386 or higher CPU
- 2MB RAM minimum
- Parallel port

Hardware Specifications

Effective Bandwidth:

Playback:	16 kHz
Recording:	3.4 kHz

Line-Out:

D/A Single Frequency Distortion:	-60 dB @1 kHz -55 dB @10 kHz
Max Level:	1.3V RMS
Signal to Noise Ratio (unweighted):	-72 dB

Built-In Speaker:

Single Frequency Distortion:	-54 dB @1 kHz -50 dB @10 kHz
Signal to Noise Ratio (unweighted):	-70 dB

Headphone Out:

Single Frequency Distortion:	-57 dB @1 kHz -54 dB @10 kHz

Signal to Noise Ratio (unweighted):	-70 dB

Playback and Recording

Stereo PCM Playback:

8 bits per channel:	11.025 kHz 22.050 kHz 44.100 kHz
16 bits per channel:	11.025 kHz 22.050 kHz 44.100 kHz

Mono PCM Playback:

8 bit linear:	4 kHz to 44.1 kHz
8 bit μ-law:	4 kHz to 44.1 kHz
8 bit a-law:	4 kHz to 44.1 kHz
8 bit linear:	11.025 kHz 22.05 kHz 44.1 kHz
16 bit linear:	4 kHz to 44.1 kHz
16 bit linear:	11.025 kHz 22.05 kHz 44.1 kHz

Adaptive PCM decompression (ADPCM) Playback:

DVI 4 bits per sample (BPS):	4 kHz to 44.1 kHz.
OKI 4 BPS:	4 kHz to 44.1 kHz.
Sound Blaster™ 4 BPS:	4 kHz to 44.1 kHz.
Sound Blaster™ 2.6 BPS:	4 kHz to 44.1 kHz.
Sound Blaster™ 2 BPS:	4 kHz to 44.1 kHz.

Synthesized Music:

Mode 1:	9 Melodic Voices
Mode 2:	7 Melodic Voices 4 Percussive Voices
Mode 3 (speech over music):	9 Melodic Voices; μ-law/linear PCM, 4 kHz to 11.025 kHz
Mode 4 (speech over music):	7 Melodic Voices 4 Percussive Voices μ-law/linear PCM 4 kHz to 11.025 kHz

Mono PCM Recording:

8 bit linear:	8 kHz, 11.025 kHz
8 bit μ-law:	8 kHz, 11.025 kHz
8 bit a-law:	8 kHz, 11.025 kHz
16 bit linear:	8 kHz, 11.025 kHz

Adaptive PCM compression (ADPCM) Recording:

DVI 4 bits per sample (BPS):	8 kHz, 11.025 kHz
OKI 4 BPS:	8 kHz, 11.025 kHz
Sound Blaster™ 4 BPS:	8 kHz, 11.025 kHz
Sound Blaster™ 2.6 BPS:	8 kHz, 11.025 kHz
Sound Blaster™ 2 BPS:	8 kHz, 11.025 kHz

DigiRec / DigiPlay Audio File Formats

These utilities support the following audio formats:

- Windows™ Wave Files (*.WAV)
- Creative Labs Speech (*.VOC)
- IBM Linkway CVSD (*.CVS)
- IBM Storyboard Live! CVSD (*.AUC)
- IBM Storyboard Live! PCM (*.AUD)
- Digispeech CVSD (*.CVS, *.CVx)
- Digispeech std. (*.PAC), playback only
- Digispeech fixed (*.FIX), playback only
- ADPCM (*.OKI)
- PCM linear (*.LIN)
- PCM μ-law (CCITT standard)
- PCM a-law (CCITT standard)

For these types of audio files, the file format is determined by an internal header, not by the file extension, so you might find that other extensions may be used to represent the same data formats.

In addition to the above formats with defined headers, DigiPlay also supports the following formats via command line arguments:

- IBM LPC; playback only
- ASCII TEXT;
- FirstByte Text-to-Speech Engine must be loaded first.
- Intel DVI (IMA standard)
- ADPCM

- DSP Solutions RELP
- Creative Labs ADPCM; 2:1, 3:1, and 4:1 formats
- Stereo PCM

For more information about any of these file formats, please contact DSP Solutions Technical support.

DigiRec / DigiPlay Error Codes

The DigiPlay and DigiRec utilities return the following error codes upon completion. These error codes may be used by knowledgeable DOS Batch file users to perform various actions.

EXIT_SUCCESS 0

Operation successfully completed.

EXIT_BAD_USEAGE 1

Command line syntax error.

EXIT_FILE_ERR 2

Error opening/reading/writing/closing audio file.

EXIT_BAD_STATUS 3

Error reported by DSP Solutions unit, or DSP Solutions driver not found.

EXIT_NOT_SUPPORTED 4

Driver and/or unit does not support requested operation.

For more information about any of these error codes, please contact DSP Solutions Technical support.

Glossary of Sound-Related Terms

μ-law

A CCITT standard algorithm for converting digital linear samples to logarithmically companded samples, used mostly in telecommunication systems in North America and Japan.

ADPCM

Adaptive Differential Pulse Code Modulation. A class of speech/audio compression/decompression algorithms that use adaptive techniques to calculate the difference between a PCM sample and its estimate, and to encode this difference. Three types of ADPCM are supported by PORT•ABLE Sound Plus™.

a-law

A CCITT standard algorithm for converting digital linear samples to logarithmically companded samples, used mostly in telecommunication systems in Europe.

CCITT

International telegraph and telephone consultative committee. A governing body for setting communication standards.

CVSD

Continuously Variable Slope Deltamodulation. A type of sound compression that results in moderate quality playback with good compression rates.

Digitized Audio

The way that the computer represents sound recorded by most sound devices. During recording, the sound device stores the voltage level from the microphone several thousand times each second. During playback, the voltage values are presented to the sound device at the same rate, producing audio that sounds nearly the same as the original.

Driver

A program that remains in memory all the time and provides an program interface to a specific device. Application programs talk to

MPC

MultiMedia PC. A symbol for programs that follow a Microsoft® standard for audiovisual effects. Programs that display this symbol should work with all sound devices that display the symbol.

OLE

Object Linking and Embedding. This is a data format that allows the user to place 'objects' (pictures, graphs, etc.) created in one application into a document or spreadsheet created by another application. The 'object' can then be viewed, operated, or changed from within the second application by double-clicking on the icon that represents the object.

PCM

Pulse Code Modulation. A technique used to convert an analog signal into a digital representation (digitized signal). In telecommunication systems, it can also refer to μ-law or a-law samples.

Stereo

Two separate channels of sound. (See also: Mono)

Synthesized music

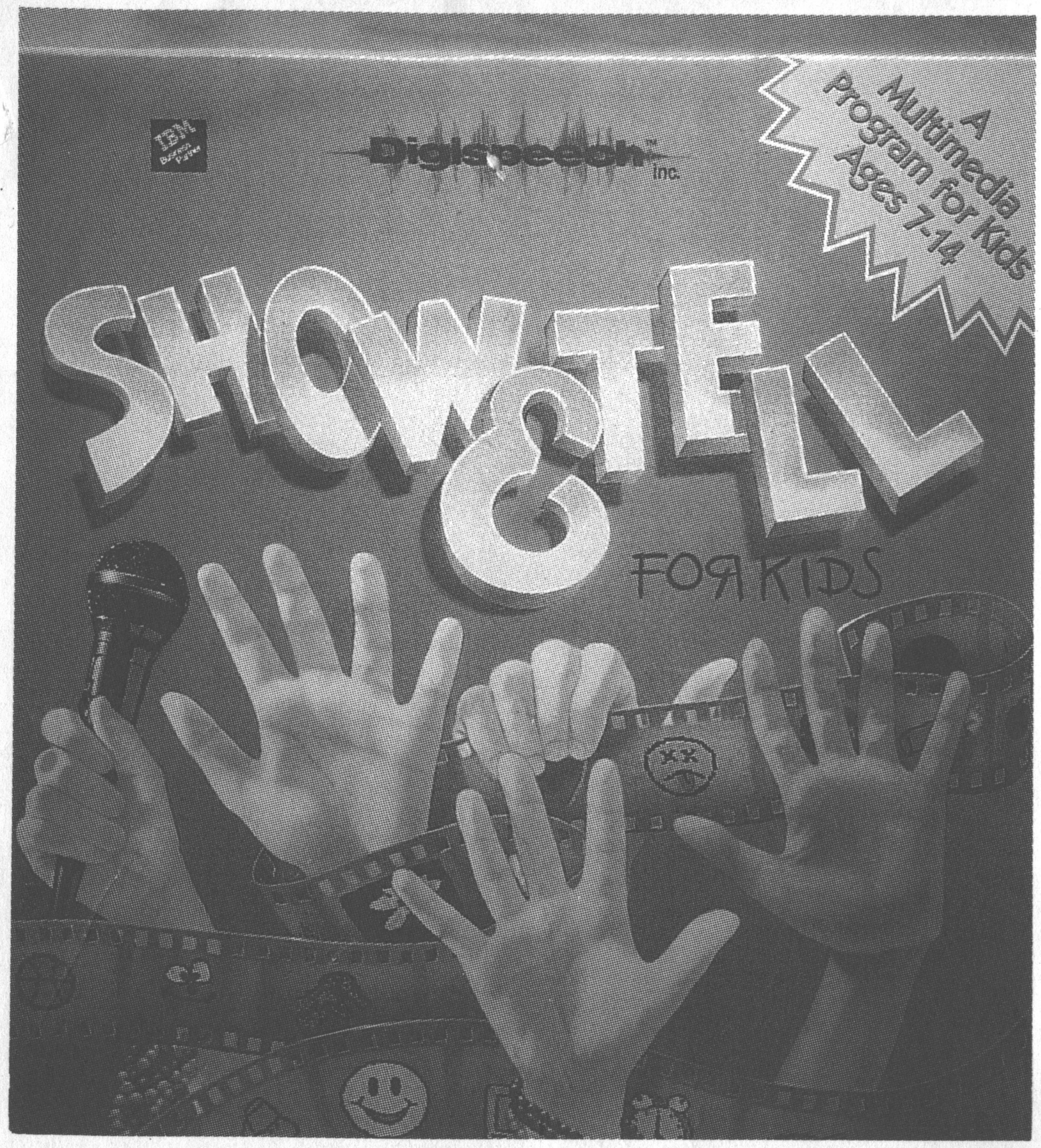
Music that is generated by the computer or sound device from a specific command set. Synthesized music is NOT recorded from an external source.

TSR

Terminate and Stay Resident. A program that continues to function after it has been loaded and the DOS prompt is returned. These programs are usually activated by a special key sequence, or 'hot-key' after they have been loaded. Examples are programs that pop-up calculators or calendars, programs that save keyboard input, and programs that monitor the system for computer viruses. The DSP Solutions PDIGI 'Driver' is actually a special TSR program.

WAVE

Windows™ sound file format. Wave files are standard for Windows™ sound applications and support several different type of sound compression. Not all sound devices can play all types of WAVE files, but all sound devices can play the basic WAVE format. WAVE files have an extension of .WAV.



CAN WE SHOW & TELL YOU MORE?

If you like the abreviated version of Show & Tell for Kids™ in this package, you'll love the complete fully functional version. The full version allows you to create 40 slides with a larger clip art and sound effects library that will enhance your presentations. (Over 100 sound effects and clip art images).

A full audio "Guided Tutorial" takes you through step by step feature of Show & Tell for Kids™. Each screen talks you through as well as shows you how simple it is to create your own slide show presentation.

To order the full version of Show & Tell for Kids™ ($49.95*), send your check or money order to;

DSP Solutions.,
2464 Embarcadero Way
Palo Alto, CA 94303

or call 916-621-1787 Fax: 916-621-2093

* Please add $1.50 for shipping and handling.

CA residents add 8.25% sales tax.
Allow one to two weeks for delivery.

Business Partner

DSP™ SOLUTIONS inc.

2464 Embarcadero Way • Palo Alto, CA 94303 • Voice: (415) 494-8086 • Fax: (415) 494-8114
550 Main Street, Suite J • Placerville, CA 95667 • Voice: (916) 621-1787 • Fax: (916) 621-2093

Manual Revision 2.00 © 1993, DSP Solutions, Inc.

Credits

Sound clips included with Show & Tell for Kids™ are used by permission from Prosonus, Inc.
Clip art included with Show & Tell for Kids™ is used by permission from T-Maker, Inc.

Limited Warranty

DSP Solutions, Inc., warrants that its product will substantially conform to the performance specifications contained in this user guide, provided that the product is used on computer hardware and with an operating system for which it was designed. In the event of any defects in manufacture or failure to conform to published specifications, DSP Solutions, Inc., will, at its option, repair or replace defective product at no charge. Defective product must be received at a DSP Solutions, Inc., facility within ninety (90) days from date of purchase, accompanied by proof of purchase. Shipping charges to DSP Solutions, Inc., shall be prepaid by purchaser.

The foregoing warranty is exclusive and in lieu of all other warranties, express or implied, including but not limited to implied warranty for merchantability or fitness for a particular purpose. DSP Solutions, Inc., expressly disclaims any and all liability for any incidental, special or consequential damages arising from the use or inability to use its product, software or documentation. In no case shall the liability of DSP Solutions, Inc., exceed the cost of the product.

Some States do not allow the limitation or exclusion of implied warranties or general liability, so the above limitation or exclusion may not apply, solely by operation of the law.

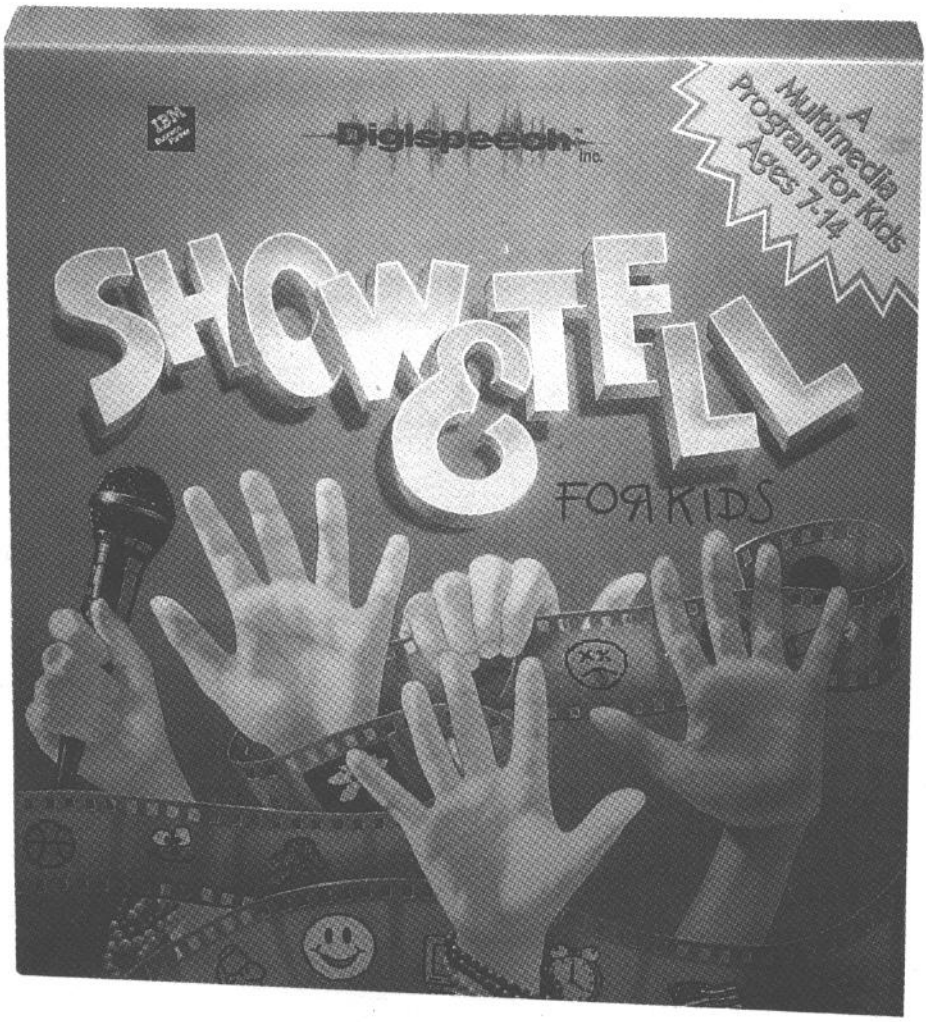
Software License Agreement

PLEASE READ THIS AGREEMENT BEFORE OPENING THE ENVELOPE THAT CONTAINS THE DISKETTES. IF YOU DO NOT WISH TO COMPLY WITH THE TERMS AND CONDITIONS PRESENTED HERE, RETURN THE ENTIRE PRODUCT IN ITS ORIGINAL PACKAGING TO YOUR SUPPLIER.

By opening the envelope, you agree to the following terms and conditions:

1. DSP Solutions, Inc., grants you a non-exclusive, non-transferable license to use the enclosed copy of the copyrighted computer program (Program) on a single computer.
2. You will not: (A) sell, rent, lease, lend, sublicense or otherwise transfer any copies of the Program; (B) modify, disassemble or decompile the Program; or (C) use the Program on more than one system at a time, on a network, or on any system in which the Program could be used by more than one person at a time. You will not make any copies of the Program except one copy for backup purposes.
3. This license is effective until terminated. You may terminate it at any time by destroying all copies of the Program. It will also terminate automatically if you fail to comply with any of the terms and conditions in this Agreement.
4. This Agreement constitutes the entire agreement and understanding between the parties and supersedes any prior agreements, representations or understandings, oral or written, relating to the Program.
5. This Agreement is governed by the laws of the State of California.

Microsoft is a registered trademark and Windows is a trademark of Microsoft Corp.
Sound Blaster is a trademark of Creative Labs, Inc.
AdLib is a registered trademark of Ad Lib, Inc.


IBM
Digispeech Inc.
A Multimedia Program for Kids Ages 7-14
SHOW & TELL
FOR KIDS

CAN WE SHOW & TELL YOU MORE?

If you like the abreviated version of Show & Tell for Kids™ in this package, you'll love the complete fully functional version. The full version allows you to create 40 slides with a larger clip art and sound effects library that will enhance your presentations. (Over 100 sound effects and clip art images).

A full audio "Guided Tutorial" takes you through step by step feature of Show & Tell for Kids™. Each screen talks you through as well as shows you how simple it is to create your own slide show presentation.

To order the full version of Show & Tell for Kids™ ($49.95*), send your check or money order to;

Digispeech Inc.,
2464 Embarcadero Way
Palo Alto, CA 94303

or call 916-621-1787 Fax: 916-621-2093

* Please add $1.50 for shipping and handling.

CA residents add 8.25% sales tax.
Allow one to two weeks for delivery.